

Attorney's Docket: 2001DE307/D

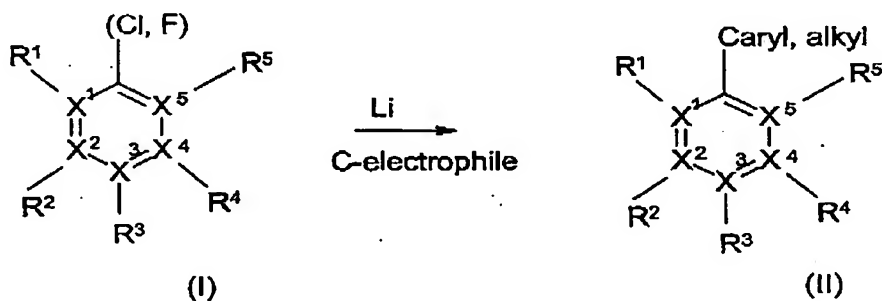
Serial No.: 10/677,412

Art Unit 1625

Response to Office Action, Mailed 05/25/2005

This listing of claims will replace all prior versions, and listings of claims in the application:

1. (Currently Amended) A process for preparing compounds of the formula (II),



where the substituents R^1 to R^5 are each independently H, CH_3 , straight-chain or branched C_1 - C_6 -alkyl, $\text{CH}(\text{OC}_1\text{-C}_6\text{-alkyl})_2$, $\text{CH}(\text{C}_1\text{-C}_5\text{-alkyl})(\text{OC}_1\text{-C}_5\text{-alkyl})$, $\text{CH}_2(\text{OC}_1\text{-C}_5\text{-alkyl})$, $\text{CH}(\text{CH}_3)(\text{OC}_1\text{-C}_5\text{-alkyl})$, C_1 - C_6 -alkoxy, $\text{N}(\text{C}_1\text{-C}_5\text{-alkyl})_2$, phenyl, substituted phenyl, aryl, heteroaryl, $\text{S}(\text{C}_1\text{-C}_5\text{-alkyl})$ or a radical $\text{C}_{\text{aryl, alkyl}}$, and

the symbols X^{1-5} are each carbon with at least one a maximum of two neighboring X^{1-5} [[are]] being nitrogen or with at least one X^{1-5} being nitrogen and X^1R^1 and X^2R^2 together are O, NH, $\text{N}(\text{C}_1\text{-C}_5\text{-alkyl})$, $\text{N}(\text{C}=\text{O}-\text{C}_1\text{-C}_5\text{-alkyl})$, $\text{N}(\text{SiR}_3)_2$ or S,

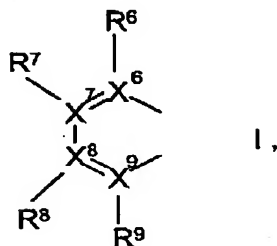
or where neighboring radicals R^1 to R^5 form the following structural unit,

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where X^6 to X^9 and R^6 to R^9 have the same meaning as X^1 to X^5 and R^1 to R^5 and

the radical $C_{aryl, alkyl}$ is straight-chain or branched, substituted or unsubstituted C_1 - C_8 -alkyl, 1-hydroxyalkyl having from 1 to 8 carbon atoms, CN, 2-hydroxyalkyl having from 2 to 5 carbon atoms, 3-hydroxyalkyl having from 3 to 5 carbon atoms, 1-NHR-alkyl having from 1 to 5 carbon atoms, $CH(OC_1-C_5-alkyl)_2$, $C(C_1-C_5-alkyl)(OC_1-C_5-alkyl)$, $CH_2(OC_1-C_5-alkyl)$, $CH(CH_3)(OC_1-C_5-alkyl)$, C_1 - C_5 -alkoxy, $N(C_1-C_5-alkyl)_2$, phenyl, substituted phenyl, aryl, heteroaryl, CO_2H , CO_2alkyl , $(C=O)_{0.5}$, substituted 1-vinylalkyls, $CH_3-C(=O)$, $R-C(=O)$ or CHO , wherein R is an alkyl having from 1 to 5 carbon atoms.

which comprises reacting chloro- or fluoroaromatics of the formula (I) with carbon electrophiles and lithium metal.

2. (Currently Amended) The process as claimed in claim 1, wherein the carbon electrophile is selected from the group consisting of:

aryl or alkyl cyanates ($C_{aryl, alkyl} = CN$)

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oxirane, substituted oxiranes ($C_{\text{aryl,alkyl}} = \text{CH}_2\text{CH}_2\text{OH}$, substituted $\text{CR}_2\text{CR}_2\text{OH}$)

azomethines ($C_{\text{aryl,alkyl}} = \text{CR}^+_2\text{-NR}^1\text{H}$) ($C_{\text{aryl,alkyl}} = \text{CR}^1_2\text{-NR}^1\text{H}$)

nitroenolates ($C_{\text{aryl,alkyl}} = \text{oximes}$)

immonium salts ($C_{\text{aryl,alkyl}} = \text{amines}$)

haloaromatics, aryl triflates, other arylsulfonates ($C_{\text{aryl,alkyl}} = \text{aryl, heteroaryl}$)

carbon dioxide ($C_{\text{aryl,alkyl}} = \text{COOH}$)

carbon monoxide ($C_{\text{aryl,alkyl}} = (-\text{CO}-)_{0.5}$)

aldehydes, ketones ($C_{\text{aryl,alkyl}} = \text{CHR}^1\text{-OH}$, $\text{CR}^1_2\text{-OH}$)

α,β -unsaturated aldehydes/ketones ($C_{\text{aryl,alkyl}} = \text{CH(OH)-vinyl}$, $\text{CR}^1(\text{OH})\text{-vinyl}$)

ketenes ($C_{\text{aryl,alkyl}} = \text{C(=O)CH}_3$ in ketene, C(=O)-R , wherein R is an alkyl having from 1 to 5 carbon atoms in substituted ketenes)

alkali metal and alkaline earth metal salts of carboxylic acids ($C_{\text{aryl,alkyl}} = \text{CHO}$ in formates, COCH_3 in acetates, R^1CO in R^1COOMet R^1COOCH_3)

aliphatic nitriles ($C_{\text{aryl,alkyl}} = \text{COCH}_3$ in acetonitrile, R^1CO in R^1CN)

aromatic nitriles ($C_{\text{aryl,alkyl}} = \text{COAr}^+$)

amides ($C_{\text{aryl,alkyl}} = \text{CHO}$ in HCONR^1_2 , C(=O)R^1 in $\text{R}^1\text{CONR}^1_2$, $\text{R}^1\text{CONR}^1_2$)

esters ($C_{\text{aryl,alkyl}} = [\text{C(OH)R}^1]_{0.5}$),

alkylating agents ($C_{\text{aryl,alkyl}} = \text{alkyl}$), and mixtures thereof.

3. (original) The process as claimed in claim 1, wherein the reaction is performed at a temperature in the range from -100 to $+80^\circ\text{C}$.

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4. (original) The process as claimed in claim 1, wherein lithium is used in the form of a dispersion, powder, turnings, sand, granules, pieces or in the form of bars.
5. (Previously Presented) The process as claimed in claim 1, wherein the solvent used is an aliphatic or aromatic ether, a hydrocarbon or an amine which does not carry a hydrogen on the nitrogen atom, selected from the group consisting of triethylamine, diethyl ether, tetrahydrofuran, toluene, toluene-THF mixtures, anisole, diisopropyl ether, and mixtures thereof.
6. (original) The process as claimed in claim 1, wherein the process is performed as a one-pot process.
7. (original) The process as claimed in claim 1, wherein the organolithium compound is first generated and then reacted with the carbon electrophile at the same or a slightly different temperature.
8. (Canceled)
9. (original) The process as claimed in claim 2, wherein the reaction is performed at a temperature in the range from -100 to $+80^{\circ}\text{C}$.

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10. (original) The process as claimed in claim 2, wherein lithium is used in the form of a dispersion, powder, turnings, sand, granules, pieces or in the form of bars.
11. (Previously Presented) The process as claimed in claim 2, wherein the solvent used is an aliphatic or aromatic ether, a hydrocarbon or an amine which does not carry a hydrogen on the nitrogen atom, selected from the group consisting of triethylamine, diethyl ether, tetrahydrofuran, toluene, toluene-THF mixtures, anisole, diisopropyl ether, and mixtures thereof.
12. (original) The process as claimed in claim 2, wherein the process is performed as a one-pot process.
13. (original) The process as claimed in claim 2, wherein the organolithium compound is first generated and then reacted with the carbon electrophile at the same or a slightly different temperature.
14. (original) The process as claimed in claim 3, wherein lithium is used in the form of a dispersion, powder, turnings, sand, granules, pieces or in the form of bars.
15. (Previously Presented) The process as claimed in claim 3, wherein the ~~solvent used is an aliphatic or aromatic ether, a hydrocarbon or an amine~~

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which does not carry a hydrogen on the nitrogen atom, selected from the group consisting of triethylamine, diethyl ether, tetrahydrofuran, toluene, toluene-THF mixtures, anisole, diisopropyl ether, and mixtures thereof.

16. (original) The process as claimed in claim 3, wherein the process is performed as a one-pot process.
17. (original) The process as claimed in claim 3, wherein the organolithium compound is first generated and then reacted with the carbon electrophile at the same or a slightly different temperature.
18. (Previously Presented) The process as claimed in claim 4, wherein the solvent used is an aliphatic or aromatic ether, a hydrocarbon or an amine which does not carry a hydrogen on the nitrogen atom, selected from the group consisting of triethylamine, diethyl ether, tetrahydrofuran, toluene, toluene-THF mixtures, anisole, diisopropyl ether, and mixtures thereof.
19. (original) The process as claimed in claim 4, wherein the process is performed as a one-pot process.
20. (original) The process as claimed in claim 4, wherein the organolithium compound is first generated and then reacted with the carbon electrophile at the same or a slightly different temperature.